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ABSTRACT

Education will have to face fewer students and less money in the next decade. The white middle class migration to the suburbs will cause greater concentrations of minority students in the large cities, intensifying the problems caused by non-English speaking students, and the increasingly isolated socioeconomic environment. Projections for enrollment in higher education institutions are more difficult to obtain due to a number of complicating factors, such as: foreign enrollment, part-time enrollment, and the state of the economy. The school curriculum will need to adapt to technological innovations, and the ability to use computers may even become a new aspect of literacy. There will also be a shift in emphasis toward lifelong learning, possibly with more alternating periods of work, leisure, and learning. (RJG)

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EDUCATIONAL CHALLENGES OF THE 1980's

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"In the short period during which futurists have been practicing their craft, they have made one discovery of fundamental importance: the future cannot be predicted."

James O'Toole

Introduction

NIE will shortly begin preliminary work on the preparation of the FY 1982 budget. Much of the research to be funded under this budget will be done in the 1983-1985 period, with results being published during 1985-1986. It seems appropriate, therefore, to pause before beginning this work to take a look at a few of the trends which seem likely to have an impact on American education during the 1980's.

The phrase "a few of the trends" is deliberately chosen. American public education exists in a complex setting of economic, demographic, political and societal pressures. Each of these factors interacts with others. School boards find themselves simultaneously trying to deal with such issues as inflation, declining enrollment, Federal court orders, and the impact of an increasing proportion of working mothers on PTA involvement. A really thorough review of educational trends and their possible interactions over the coming decade would require more resources than were available for the preparation of this paper. The aim of this report is rather to raise a few key issues (or what, at this date, seem likely to be key issues) in the hope that their discussion will play a consciousness-raising role, and will increase sensitivity to the fact that research to be planned during 1979-1980 must meet the needs of 1986-1990.

Focusing on the practical problems of the 1980's helped to limit the scope of this report. Although a range of futures literature was consulted, much of it was set aside either because it did not deal with education or was conducted in such a speculative or long-range manner as to be of little use in discussing the decade immediately ahead. Much of

the futures literature deals with the "world problematique" or "world macroproblem": that complex of tensions and strains (and even potential catastrophes) caused by rapidly increasing world population, world-wide industrialization, potential exhaustion of non-renewable resources, excessive nationalism and the nuclear threat, pollution of air and water, food shortages, inflation, and the fundamental problem of altering outdated values to meet a radically changed situation. The decision tc concentrate on more immediate American educational problems in this paper wns not meant to overlook the seriousness of Heilbroner's question: "Is there hope for man?"

Nor does this report present a full set of alternative scenarios even for its limited scope. Rather, because of limitations of time and resources, it seemed more realistic to choose a small number of topics on which data were available and to present these topics with a short discussion of some possible implications. If this leads to a fuller discussion of the context in which research being planned now will serve the needs of American education during the 1980's, this essay will have served its purpose.

In the year ahead, the Planning Office will have Professor Christopher Dede joining the staff as an EPFP for 1979-1980. One of his assignments will be to provide materials in the area of educational futures studies. Chris is head of the Education Section of the World Future Society, and will be in an excellent position to gather and summarize studies in this area. In the meantime, this essay is offered as a starting point and first effort, with the hope that it will lead to later work of greater depth and breadth.

I. Demographic Changes and Trends

Preschool and Elementary Enrollment

Most of the children who will be enrolled in preschool and elementary programs during the 1980's have not yet been born. Hence, the prediction of their exact numbers is difficult at best. Before citing specific projections, it might perhaps be well to note that the Census Bureau, in 1960, projected 1980 elementary enrollment at somewhere in the range of 37-46 million students. The 1977 estimate is 30 million. So much for demographic projection as an exact science.

The total number of children of school age in the 1980's will be primarily a function of two factors: the cohort of women of childbearing age (increasing rapidly as the "baby boom" children come of age) and the number of children born per woman of childbearing age (which is now at 1.9 births per woman, an historic low). The recent volatility in the interaction of these two factors is illustrated by the fact that, in 1972, there were close to 900,000 more women of childbearing age than in 1971, yet 300,000 fewer births, due to a very rapid drop in the birth rate.

In projecting preschool enrollment we have the added problem that, since attendance is not compulsory, the proportion of the age group attending is also uncertain. The preschool enrollment trend of the last decade is clearly up. In 1966, 29% of children 3-5 years of age were enrolled in preprimary programs. By 1971, this had risen to 37%, and by 1976 to 49%. The most recent figure, for 1977, is 49.5%. Whether this upward trend will continue to increase so quickly is

uncertain, but with the increasing numbers of working mothers, it seems unlikely that it will decrease significantly.

Preprimary enrollment, and any educational benefits this experience provides toward later success in elementary school, is clearly a function of family income. The proportion of children aged 3-5 who are enrolled in preprimary programs rises steadily from approximately 43% of those from homes with family incomes under $10,000 to 78% of the children from families with incomes of $50,000 or more. To the extent that students with preprimary education have an advantage over those who do not, this is a significant equity issue.

Turning to enrollment figures for public elementary schools, we find that enrollment peaked in 1971 at 27.7 million. An enrollment of 24.2 million is projected for the Fall of 1979, and a further drop to 23.6 million in 1983. From then on, enrollment may begin to rise slightly again, assuming that the present low birth rate does not fall even lower. The Census Bureau projected that the total population of 5-13 year olds will rise from a low of 29.1 million in 1985 to 32.6 million in 1990. Of course, should the birth rate rise, enrollment could be substantially higher.

It is important to note that, just at the point that the number of children aged 5-13 begins to rise in the mid-80's, the number of potential new teachers turning 22 years of age begins to decline. At the same time, the proportion of college entrants aspiring to a career in teaching has shrunk every year since the beginning of the teacher surplus (dropping from 22.1% in 1969 to 6.5% in 1975). As a result of these factors, there is at least the potential for a shortage of

elementary teachers in the late 1980's. A contributing factor is that, in 1971, 22% of all teachers were 50 or older. Hence, by the mid-80's significant numbers of teachers will be retiring. Somewhat offsetting this need for more new teachers is the large number of college graduates of previous years who have teaching credentials but who were unable to get teaching positions. Many left teaching for other professions or for child-rearing. One large unknown will be how many of these persons can be attracted back to the profession if a shortage of elementary teachers develops. Any consideration of that issue must take into account the degree to which teaching salaries fall behind the rate of inflation.

Secondary Enrollment

If the future pattern of elementary enrollment presents a mixed picture, that for secondary enrollment is much clearer. The Census Bureau projects that the number of 14-17 year olds will fall from 15.8 million in 1980 to 14.4 million in 1985, and then to 12.8 million by 1990. Only in 1991 will a slight increase begin. Thus, high school enrollment can be expected to fall throughout the 1980's. The National Center for Educational Statistics reports that enrollment in grades 9-12 in public schools peaked in 1976 at 14.3 million. It is projected to fall to 12.7 million by 1981, continuing down to 11.8 million in 1986. As a result, the job possibilities for new high school teachers would seem to be quite bleak, and high school administrators can expect to face the multiple personnel, curricular and budgetary problems of declining enrollment throughout the decade.

Enrollment Variations

In considering the impact of these variations in elementary and secondary enrollment, it is important to note that there will very likely be significant differences in what happens in various parts of the country. The sunbelt, certain suburban areas, and many rural areas are now experiencing growth in their school-age populations. Since 1970, for the first time in the nation's history, the population growth of non-metropolitan counties in the U.S. has exceeded that in metropolitan areas. Thus, some school districts may experience significant enrollment increases during the 1980's, at the same time that others lose a fourth or even a half of their present enrollment.

The problems of rapid growth could be particularly acute in certain areas of Colorado, Montana, North Dakota and Wyoming if these develop into significant sources of coal, synthetic petroleum or natural gas. These new industries may attract large numbers of workers who settle in "boom towns" in various parts of these states. Historically, those moving to such areas have disproportionately been young adults with children. This could contribute to the depopulation of some school districts and the need to expand others rapidly. One key question facing many high school teachers particularly will be their willingness to relocate if they wish to remain active in the profession.

The Large City School Districts

There is every indication that the problems faced by central city school districts in major metropolitan areas may intensify over

the coming decade. During the 1970-1977 period, central cities lost 8% of their white populations at the same time that the minority populations were growing. The pattern of migration in and out of metropolitan areas is having the net effect of increasingly concentrating minority students in the cities and non-minority students outside of them. Depending on the proportion of the total metropolitan population that resides in the central cities, The Census Bureau projects that over the 1970-2000 period the decrease in white population from the 1970 level will be in the 9-27% range and the non-white population increase in the 77-85% range.

This process has been going on for some time. The year 1964 was a milestone: for the first time, the number of citizens in metropolitan suburbs surpassed the number in central cities. Today, almost 60% of those living in metropolitan areas live in the suburbs. Many suburbs have now surpassed their central cities in the provision of jobs. While it is possible that energy problems may cause some population movement back to the city, it is also possible that the movement of jobs out to the suburbs could be accelerated. In addition, should the government invest heavily in inexpensive, rapid mass transit between city and suburb, this movement of white families with young children to the suburbs could actually be accelerated.

As the racial mix in the central city schools has been changing, so has the family status of all American students. Between 1970 and 1977, the population of children under 18 living with both parents went from 89% to 85% for whites, and from 58% to 47% for blacks. At the same time, the labor force participation rate for women has grown from

37% in 1962 to 48% in 1977, and is projected to grow to the 60-70% range by 1990.

One result has been a movement toward lower density households. Thus, housing prices have not fallen, even in cities which have suffered an absolute loss of population. More people are delaying marriage, or are divorced, or are having fewer or no children, all of which results in fewer persons per apartment or per house. In addition, houses are bought today not simply because of needed space, but because they are seen as tax shelters and inflation hedges. As a result, husband/wife households as a percentage of total new households declined from an average of 53% over the 1950-1970 period to only 29% over the 1970-1975 period.

Central city school districts face the prospect of a declining total number of students and an increasing proportion of nonwhite students, many of whom are low-income, have working mothers, and/or do not come from intact, two-parent families. The problems of providing a quality education under such conditions of racial and socioeconomic isolation may become even more severe than they are now. This is particularly true because these districts may experience serious financial problems as a smaller and smaller proportion of the voting population has children in the schools, on the one hand, and as an aging teacher force at the top of the pay scale utilizes militant teacher unions to keep pace with inflation on the other. With the Supreme Court disinclined to order school integration across district lines, and increasing energy costs making transportation to reduce racial isolation more and more expensive, the problem of providing

high quality educational experiences to large and increasing proportions of students from low-income, minority homes will be a central educational dilemma of the 80's and beyond.

This situation may be further complicated by large numbers of non-English speaking Asian and Hispanic immigrants, legal and illegal. Indeed, if their numbers continue to increase rapidly, the central city public schools may experience an Americanization challenge and mission not unlike that of the 1890's.

Colleges and Universities

Predictions of college and university enrollment are complicated by a number of variables not found in considering elementary and secondary enrollment. College attendance is not mandatory, and there have recently been significant swings in the proportion who choose to go on to higher education. Many students attend colleges and universities at some distance from their homes, so that attendance cannot easily be predicted from local population figures. Students who do not go to college after high school may at any later time choose to enroll, on either a full- or part-time basis, as a great many in fact are doing. In 1976, for example, 22% of college freshman had waited from one to three years after high school graduation before enrolling. Colleges and universities, unlike public elementary and secondary schools, are not tuition-free, so that costs can be a major factor in both the decision to attend or not attend and the choice of institution.

Accepting these uncertainties as given, the basic fact is that between 1980 and 1990, the 18-21 year old cohort will lose over 2.6 million persons, a decline of 15%. Since, in 1975, 48% of the total enrollment in higher education came from this group (as did 64% of the full-time undergraduate enrollment). This is bound to affect college and university attendance.

At the same time, the proportion of the 18-24 year old cohort who are minorities will be increasing from 15.3% in 1980 to 16.5% in 1985 to 17.9% in 1990. Because of the reduced number of students graduating from high school, colleges will have to compete with the military and with business (which, for the first time in decades, will be recruiting from a reduced number of high school graduates seeking entry level positions). Since the military services are barely able to recruit enough volunteers from the present large cohort of high school graduates, the reintroduction of the draft may well be necessary.

One major unknown in the college enrollment picture is the number of foreign students seeking admission to American colleges and universities. In 1976-1977, over 200,000 foreign non-immigrants attended American academic institutions. Most of these students are men whose majors are heavily concentrated in engineering, business management, and the sciences. The largest single contingent has been from Iran, but this may not continue. While the excess capacity that will develop in American institutions of higher education in the 1980's may seem the perfect answer to the higher educational needs of developing nations which cannot afford to provide expensive scientific and

technical education for their populations, it is not clear that all American institutions are prepared to deal with large numbers of foreign students in a way that is mutually beneficial and satisfactory.

As is true of elementary and secondary schools, there will likely be widely scattered patterns of increase and decline in college and university enrollments depending on local circumstances. The American Council on Education projects that from 1975 to 1985, the 18 year old population will drop by 50% in Rhode Island, 44% in the District of Columbia, and 38% in West Virginia, while rising 26% in North Carolina, 32% in Nevada and 36% in Alaska. The National Center for Educational Statistics projects that, while full-time college enrollment over the 1976-1986 period will fall by 1%, part-time enrollment will increase by 45%. Enrollment in public institutions is projected to grow by 23% at the same time that enrollment in private schools falls by 5%. Although four-year institutions are expected to lose 3% of their enrollment over that period, two-year institutions are expected to gain 54%, and graduate enrollment is expected to increase by 15%.

Further complicating the situation is the fact that during the early 1980's, there may also be a "sibling squeeze" because of the large number of families with several children reaching college age simultaneously. This will be most intense in black and lower-income families. This may result in financial constraints which cause significant numbers of potential students in this situation to either give up or at least delay their college plans. Finally, much of the enrollment decrease will still be affecting colleges and universities as the decade ends. Over

the 1980-1994 period, enrollment is expected to drop by 1.8 million, and need for faculty by 100,000.

All of this suggests that publicly supported institutions located in large cities, structured to accommodate part-time students easily, with healthy graduate enrollments and an environment attractive to nonwhite and foreign students, may actually experience enrollment increases. Conversely, the four-year private college located in a rural area and totally dependent on full-time boarding students may be in considerable difficulty. It is projected that many of these latter institutions will not survive, or will do so only with great difficulty.

VI. Issues for Educational Governance

At the elementary and secondary level, public education is characterized by an extraordinarily large number of groups who may legitimately claim a voice in the decision-making process. Parents, teachers, principles, central office personnel, superintendents, school board members, taxpayer groups, state boards and superintendents, the governor, the legislature, Federal officials, and even the students themselves can all quite legitimately say: I have a right to participate in the making of that decision. This makes educational leadership extremely difficult, since any one of these groups may, in effect, veto a decision. As a result, it is often easiest to do this year essentially what was done last year.

In the 1980's educational governance may become even more difficult. New pressures and demands may make it impossible to do

what was done previously, and yet a consensus on what else to do will be very difficult to obtain. Costs do not decrease in proportion to enrollment, so that, in an inflationary economy, increasing numbers of school districts will be spending more money to educate fewer students. Meanwhile, the public, pinched by inflation, may exert strong pressures to hold down all government spending. Spending limits may go into state laws and constitutional requirements (Proposition 13 being one obvious example).

The population of persons aged 65 and over will be rising steadily during the 1980's and beyond, going from 10.7% of the population in 1976 to 11.2% in 1980 and 12.2% in 1990. Because many of those over 65 are living on fixed incomes and are particularly hard hit by inflation, it will be difficult for them to support heavy school expenditures. An increasing number of single persons and families without children may also be less inclined to vote for educational expenditures.

One index of these trends may be found in school bond issue referenda. In 1964, 75% were approved. By 1969, this had fallen to 57%. In 1975 only 46.3% were approved. 1976, however, saw an increase to 50.8%, and 1977 to 55.6%. The trend has been toward a substantial reduction in the number of bond referenda (there were 1,625 in 1967 and only 858 in 1977). In part this is because less construction is necessary as student populations decline, but it is possibly also because school boards want to avoid proposals they believe are likely to be turned down by voters.

The consensus of forecasters is that the 1980's will be a difficult time economically. Even Herman Kahn, generally known for

his optimistic views, sees this period as one of uncertainty and malaise. He cites a study predicting yearly economic growth of only 3% in the U.S. during the 1980's, declining to 2% in the 1990's. As we leave the era of cheap food and cheap energy, characterized as it was by rapid growth in income and thus considerable lattitude for error, adjustment will be painful. All governance will be difficult. Many political scientists have been predicting a series of one-term presidents, for example. School governance will not escape these problems. As the margin for error decreases, public demand for accountability increases. School failures are given wide publicity and everyone competes for a share of diminishing resources. The unpaid, volunteer school board may be under increasing pressure as more and more members "burn out" perhaps to be replaced by those representing special interest groups. There will very likely be an intense need for training and assistance in leadership at all levels of the educational system.

III. The Impact of Microcomputers

The most significant technical innovation of the last decade has been the miniaturization of electronic circuits on small chips, making possible very complex switching and computer operations in small space, with little power usage and at very low cost. It is now possible to use these chips to make a microprocessor (a general purpose device that will perform a wide range of tasks programmed by the user). When combined with memory circuits and input-output devices, the result is a microcomputer. The present cost of a complete microcomputer system,

suitable for a small business, is approximately $7,000. As cathode-ray tubes are replaced by flat-screen video displays (essentially large integrated circuits), now in the prototype state, these costs will fall dramatically. By 1988, costs may well be 10% of what they are now or even lower. A home computer may then cost no more than a bicycle.

The critical issue is what impact this will have on the schools. One almost certain impact will be the need to include at least some familiarity with computers in the curriculum, since they will be so common that ability to understand and use them will become one aspect of literacy. But the more uncertain issue is computer usage in the instructional process itself.

The problem is not hardware, but software. The cost of memory and calculation devices has already been lowered so dramatically that there is no question that schools can provide almost any instructional program they wish at reasonable cost in terms of equipment. (Small simple devices are already being purchased by individual parents for use by their children. One such device, "The Little Professor", provides for drill and practice with basic arithmetic and sells for $12.00. Already, over three million have been sold. A more complex spelling and vocabulary device called "Speak and Spell" sells for $60.00, and not only displays a word's correct spelling on a screen but enunciates it to the child. As prices drop, more and more middle-class families will have home computers, so that some children will learn programming--and perhaps a good deal of mathematics also--at home from their parents).

The software--the computer program that sequences what the computer does next--for such devices as "The Little Professor" is relatively straightforward. These units work well for simple drill, particularly for students who learn quickly and give right answers more often than not. Serious group instruction by computer, however, would require far more complex programs than now exist. The reason, at root, is simple: such programs, to be truly responsive to a wide variety of students, must react appropriately to a very large set of possible wrong answers. That is, as students sit at the console and work arithmetic problems or try to spell words or insert grammatically correct verbs in sentences, effective instruction requires that the computer not only be able to point out that a given answer is incorrect, but also to react to what the student is doing wrong and provide some kind of help so that the error is not repeated. The more difficult the work, the larger the number of possible errors that can be made. This then involves very complex "branching" instructions to handle a wide variety of combinations of errors and ways to correct them. The computer program involved becomes extraordinarily complex. All attempts to utilize computers for instruction thus far have foundered on this problem.

Of course, with the one-to-one instruction possible in a family situation, parents can intervene at any point the child is having trouble and give assistance. There is thus a very real possibility that well-educated, middle class parents (who are, more and more, limiting themselves to only one or two children) will purchase increasingly sophisticated and relatively cheap computer products (nearly half a million of

which were sold in 1978 alone) and thus provide instruction at home. Students in less affluent families with less educated parents are not as likely to have such opportunities. This situation could seriously exacerbate the already large gap between the educational achievements of low-income and middle-income students.

On the other hand, should someone come up with a significant programming breakthrough, the whole situation could change. Once a computer program is finally written, it can be mass-produced at very little cost and used repeatedly at multiple sites. Should even one ingenious simulation game or program for computer-assisted instruction (CAI) lead to significant gains in achievement in some area of basic instruction, the resulting publicity would lead to pressure for its quick adoption nation-wide. There would probably be a commitment of funds for additional development--most likely on the Federal level--given the money needed to write and test such complex computer programs and the potential nation-wide use once the development is completed. These developments would then create intense demands for in-service training in these new materials and their use.

Many teachers do not like mathematics and have never felt confortable teaching it. The widespread introduction of computer technology into the schools might be neither easy nor painless. Depending on how extensive such usage became, the entire process could involve significant changes in the role of teachers, new physical lay-outs in the schools, individualization of instruction, and a reconsideration of the wisdom of grouping by age. All of this may or may not occur, but given the existence of low-cost hardware, there is considerable

potential for a software breakthrough which could leave behind schools that were unaware of all of CAI's ultimate implications.

IV. Education and Work

One of the salient issues for American society over the coming decades is whether the predominant pattern--continuing in school full-time until 18-22 years of age, and then working continuously until retirement at 65--will continue. There is sericus discussion of moving toward a more balanced mix of education, work and leisure throughout the life span, both in the sense of job sharing (two persons fill one full-time job, allowing each half time for education, child care, or whatever), and also in the sense of alternating periods of full time work, education, and leisure throughout life. These discussions are being supported by recent research findings on adult growth and development, which indicate that the alternating periods of upset and change, integration and stability which have been widely observed in childhood and adolescence in fact continue throughout adult life. For many adults, a return to the university for a year or two is not only a time for advanced education, but a time to reconsider life's purposes, perhaps to change careers, certainly to re-examine values.

Whether this change in what is considered the proper mix of work, education and leisure will become a reality, however, is not clear. There are certainly a great many structural obstacles, as well as indications that some of these obstacles may lessen. Colleges and universities that were formerly little interested in part-time students (particularly at the graduate level) have become more receptive now that

there is a downturn in student enrollment. In 1967-1968, 1,100 colleges and universities reported offering adult and continuing education. By 1975-1976, this figure had doubled to over 2,000 institutions. Part-time college enrollment is becoming much more common. Since 1970 part-time enrollment has increased from 32% of total enrollment to 40%, and is expected to continue increasing substantially. Men often did not feel that it was financially possible to take a year or two off for study in mid-life, but increasing numbers of working spouses and fewer or no children is making such time more possible. Changing careers was once something that suggested a kind of instability. It has now become so common that this is less and less an issue. One Census sample found that a third of the adults surveyed had changed occupations in the preceeding five years.

Demographic patterns may also lead to increased pressures for career change and reconsideration in mid-life. Between 1981 and 1987, the number of 35 to 44 year olds will increase by 28%. In 1972, there were only 98 workers 35 to 44 for every 100 aged 45-54. By 1985, there will be 142. This could lead to a "promotion squeeze" as the large, well-educated baby boom generation competes for a small number of advanced positions. At least some career ladders will become severely congested. This may lead to demands for career retraining or, perhaps to serious reconsideration of lifestyle goals.

While the proportion of workers who are college graduates will continue to grow, the percentage of professional-technical jobs is projected to remain approximately constant. By 1980 there may be as many as two and a half college graduates competing for every well-paid professional, technical or managerial position. Even in 1970-1971,

only 64% of American men were able to find initial professional, technical or managerial jobs when they graduated from college. The recent drop in the proportion of men attending college is no doubt at least partially due to this situation. (The proportion of women continues to grow, as more opportunities are opened to them).

Should a movement to break up the present life pattern which makes education synonymous with youth, work with adulthood and retirement with old age actually take hold, there would be a wide range of implications for the schools. The emphasis on "learning how to learn" in the elementary school could be expected to increase. Cooperative education and other school/work combinations would become more popular in high school. Fewer students would go immediately from high school to college. Attempts would be made to find the period in a person's life and career when a given subject matter would be learned best. The problem of offering night courses and part-time instruction while still maintaining a high academic standard can be expected to trouble colleges and universities proud of their reputation for a high quality of education.

One essential question is whether the next decade or two will see some groundbreaking social inventions in this area. Social technologies, like scientific technologies, channel people's efforts and increase their potential. The GI Bill, the 25-year, low down-payment mortgage, the credit card, social security, the community college, the National Institute of Education itself, all are social inventions that have channeled resources and created opportunities. The area of education/work/leisure is ripe for social invention. The

concept of job-sharing, recently mandated for Federal agencies, is only one small example. Research will be needed to find out who takes advantage of job-sharing and with what effects. The degree to which education both within and outside of schools will play a significantly changed role in adult life in the next decade or two will be as dependent on social innovation as our capacity to cope with the energy shortage will depend on technological innovation.

V. Discussion

The future, as O'Toole points out, cannot be predicted. The purpose of examining present trends and possible future implications is not to predict the future, but to raise our consciousness about future implications of present decisions. Many of the possibilities discussed in this essay may well not occur. This may be because of the intervention of unexpected factors, or because negative outcomes were foreseen and steps taken to prevent those results. This, indeed, is a major usage of futures research: to select the most beneficial scenario from among multiple possibilities and to work to make that scenario more probable than any more undesirable outcomes.

Another equally helpful use of futures research is to develop the habit of positioning onself to handle any of a number of possible contingencies, and perhaps particularly to be able to minimize the maximum loss in any given situation. The school board that seriously reviews a variety of possible changes in enrollment that may occur over the coming decades may well choose to build a building without supporting interior walls. Such a building can, in the future, be

converted to any one of a number of uses depending on the situation which actually develops.

Similarly, it is important for educational research to focus on problems that are not only serious now, but which have the potential of becoming serious in the future. The problem of managing enrollment decline is certainly worth study. Such declines will continue to make life difficult for some years to come, especially at the high school and college level. But the problem of providing quality education in a socioeconomically and racially isolated environment is not only serious today, but gives every indication of becoming more serious in the decades ahead. This problem may well be compounded if the use of home microcomputers is largely confined to the middle and upper classes. It will be further exacerbated if high school graduates from racially and socioeconomically isolated central city schools go on to colleges and universities which, while marked by an increasing proportion of minority students, have never moved beyond a superficial desegregation. If desegregation means more physical co-presence, minority students will continue to feel alienated and isolated. Given intensifying competition for professional jobs and the importance of informal networks in obtaining such jobs, this developing situation could lead to increased racial tension and social disruption throughout our society.

It thus seems reasonable that each division of NIE, in beginning the process of research area planning, should attempt to place this planning effort in the futures context. Just as the House of Representatives now routinely holds foresight hearings as part of its consideration of each piece of major legislation, NIE can attempt to review the

research needs of the coming decade before deciding where to commit limited funds for specific research projects. As is evident even in this very introductory review of current trends and possibilities, the equity and practice demands of the 1980's will require all of the assistance that research can bring to bear.

Sources Consulted

Since this essay is an in-house document, the usual array of footnotes and citations has been omitted for ease of reading. It needs to be explicitly stated, however, that this paper borrows very heavily from the sources listed below. While errors and misunderstandings are the responsbility of the author, the paper could not possibly have been written without the insight and data found in:

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